REMARKS

Applicant amended the reference on page 11 to "PCT/NZ00/00099" with a reference to the published PCT patent specification. The US application derived from this PCT application has not yet been published.

Applicant submits herewith corrected Figure 1 which accurately references items 20, 22, 24, 26, 28 and 30.

Claim Rejections – 35 U.S.C. 102

Claims 1, 46-47, 52-54, 59-61, 66, 67-69, 74, 75-77, 82-84 and 89 are rejected under 35 U.S.C. 102(e) as being anticipated by Gopinathan et al (USPN 5,819,226).

Applicant has cancelled all of the above claims and has added new claims 90-116 that include independent claims 90, 94, 98, 103, 108 and 112.

Applicant respectfully submits that each of the independent claims include the limitation of interaction data representing interactions between customers and gaming machines. The independent claims further include the limitation of prediction data representing predicted revenue from future interactions between customers and individual gaming machines that is obtained from the neural network.

Applicant respectfully submits that the Gopinathan et al reference does not explicitly disclose or teach the limitations of these independent claims.

Claim Rejections – 35 U.S.C. 103

Claims 48-51, 55-58, 62-65, 70-73, 78-81 and 85-88 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gopinathan et al in view of LeStrange et al (USPN 5,470,079). Applicant respectfully submits that the subject matter of independent claims 90, 94, 98, 103, 108 and 112 would not have been obvious to one of ordinary skill in the art at the time the invention was made in view of Gopinathan et al and LeStrange et al.

LeStrange et al describes a game machine accounting and monitoring system. LeStrange identifies that most gambling casinos and other gaming locations contain a large number of gaming machines that typically accept one or more coins as wagers and dispense winnings in coins from a hopper. There is a constant inflow and outflow of currency through such machines

and it is important to keep careful and accurate records of game activity. Gambling Regulatory Commissions in many jurisdictions also require casino operators to keep very specific accounting data with regard to their gaming machines. It is therefore desirable to automate game machine accounting to improve reliability and reduce costs (column 1, lines 13-26).

LeStrange identifies the problem that the addition of new forms of wagering and payout instruments has greatly complicated the machine accounting problem (column 1, lines 65-67). There is a need for a fully general game accounting and monitoring system that keeps accurate game accounting data and maintains audit trails of gaming activity independent of the type of gaming machine in the forms of monetary value used by the gaming machines. In addition there is a need for a game accounting and monitoring system that can accurately calculate the hopper level and game win percentage based on accounting data for all varieties of gaming machines (column 2, line 62 to column 3, line 3).

Referring to Figure 1 of LeStrange and column 5, lines 6-13, a gaming machine 10 is in communication with a game monitor unit (GMU) 16. The game monitor unit 16 collects information from gaming machine 10 and performs game accounting and other monitoring and security functions. The GMU transmits accounting data along with information about the current state of gaming machine 10 to a host computer 20. The primary elements of this system are limited to the collection of data relating to gaming machine 10 and other gaming machines for auditing and accounting purposes. The information collected from the gaming machine relates to transactions and other customer interactions that have already occurred on that gaming machine.

Referring to Figure 2 and column 5, line 47 to column 5 line 66, the game accounting systems includes a plurality of accounting meters 34, each including a set of drop meters 38 and game activity meters 36 for tracing all money flows and game activity respectively for a particular machine. The accounting meters 34 are non reset accumulative meters and thus they establish an audit trail for the various quantities they track. The aim of the game accounting system is to monitor and accurately record historical transactions involving gaming machines. The system also includes a game event processor 26 as compatible with a variety of gaming machines including traditional coin only machines as well as advanced automated cashless versions. The accounting system is concerned with collecting accurate historical data regardless of the type of gaming machine whether it is a credit play, cashless play, or coin play gaming machine.

In addition to the accounting meters the system includes several non accumulative resettable meters that direct the operation of the accounting system. The accounting system shows a game ID indicator 33. This is a unique identifier for those gaming machines that support multiple games for example multi game video lottery systems. The game ID indicator indicates the game currently played on a multi game machine. This is quite a different concept to that claimed in Applicant's invention in that the interaction data includes at least one gaming machine identifier. In Applicant's invention the gaming machine identifier distinguishes a particular gaming machine from other gaming machines.

The game monitor unit (GMU) 16 can be a single or multiple circuit board computer, it could be located within the gaming machine or could be located outside the gaming machine and communicate with the gaming machine by a communication cable. As an alternative gaming machine accounting functions could be performed by hardware or firmware subsystem within the gaming machine itself. (Column 5, line 31-line 45).
LeStrange is concerned with a game machine accounting and monitoring system. The system is set up to record transactions on various types of gaming machines.

Applicant submits that there is no disclosure, teaching or suggestion in LeStrange to generate prediction data representing predicted revenue from future use of the gaming machines by customers as claimed in independent claims 90, 94, 98, 103, 108 and 112. The sole purpose of the accounting system of LeStrange is to provide an accurate auditing function to sophisticated gaming machines, many of which are equipped to play more than one game. Applicant further points out that there is no teaching or suggestion of a neural network to take as input the accounting data so as to generate, using the neural network, predictions as to revenue from future customer transactions.

LeStrange et al does not describe or suggest the recording of the spatial position of the gaming machine involved in a customer transaction as claimed in claims 92, 96, 100, 105, 110 and 114, nor the spatial position of machines neighbouring the machine involved in the interactions as claimed in claims 93, 97, 101, 106, 111 and 115. The accounting system described in LeStrange et al instead records the current state of a gaming machine. By current state it is meant the particular activity in which a gaming machine is involved. LeStrange et al does not describe the recording of locations of individual gaming machines, nor is there any need for the accounting system of LeStrange to do so as the sole purpose of this accounting system is

to keep accurate game accounting data and maintain audit trails of gaming activity independent of the type of gaming machine and forms of monetary value used by the gaming machines.

Applicant submits that it would not have been obvious to include in the system log data to the database spatial positioning namely the geographical locations of individual gaming machines. There is no suggestion in LeStrange to monitor the proximity of gaming machines by front and rear entrances juxtaposed between middle aisles, enabling casinos and merchants to capitalise on different customers habits or impulsive desires. The Examiner states the inclusion of such data pertaining to the different geographical location of different gaming machines allows casino owners and merchants to further monitor and predict customer habits and gaming desire as well as add to their own bottom line. Applicant respectfully submits that this represents hindsight analysis. It would not have been obvious, at the time that Applicant devised the invention, to use the accounting system of LeStrange to predict customer habits and gaming desires. There is nothing in LeStrange to describe or suggest this purpose. The sole purpose of LeStrange is to provide accurate game accounting data of historical transactions involving gaming machines.

Gopinathan et al (USPN 5,819,226) describes a system and method for detecting fraudulent transactions. The system uses a predictive model such as a neural network to evaluate individual customer accounts and identify potentially fraudulent transactions based on learned relationships among known variables.

The transactions and transaction information relate to conventional sources such as human operated credit card authorisation terminals and automated teller machines (column 3, line 34-41). This transaction information is processed by a neural network to obtain an indication of a likelihood of fraud (column 3, line 50-54).

A model development component uses historical data to build a neural network containing information representing learned relationships among a number of variables. (Column 4, lines 45-49). The data used to train the model is drawn from various database files containing historical data on individual transactions, merchants and customers. This data is preprocessed before being fed into the neural network resulting in the creation of a set of fraud related variables that have been empirically determined to form more effective predictors of fraud than the original historical data. (Column 5, line 64 to column 6, line4). The data could also include data from a fraud database which indicates which accounts had fraudulent activity

and when the fraudulent activity occurred (column 6, lines 15-17).
Many of these fraud related variables are generated using a preprocessing method (column 7, lines 25-28).

Once the model has been created, a transaction processing component reads current transaction data and customer data from databases and generates as output fraud scores representing the likelihood of fraud for each transaction. The transaction processing component may compare the likelihood of fraud with a predetermined threshold value and flag transactions for which the threshold is exceeded. This transaction data could include transaction dollar amount, date, time and other items (columns 25 and 26).

In operation the Gopinathan neural network is specifically set up to generate a fraud score. If this fraud score exceeds a threshold then an account involved in a batched semi-real time or real time system is flagged as being potentially involved in a fraudulent transaction. The neural network is described as simply one predictive modelling technique that can be used. (Column 4, lines 51-54). Any type of predictive modelling technique could be substituted for the neural network but the description uses a neural network for the purposes of illustration.
The main feature of the Gopinathan system is use of sophisticated preprocessing resulting in the creation of a set of fraud related variables that have been empirically determined to form more effective predictors of fraud than the original historical data. There is no need in the Gopinathan system to actually feed the fraud related variables into a neural network to determine a fraud indicator. The system would work equally well without a neural network.

Applicant on the other hand has devised a neural network specifically for predicting revenue from future interactions between customers and individual gaming machines.

Applicant respectfully submits that the preprocessing required by the present invention is not a significant part of the invention, in contrast to Gopinathan in which the preprocessing to derive forward related variables constitute a major part of the system.

In devising the invention Applicant has found that the neural network trained on interaction data representing interactions between customers and merchants is particularly suitable for predicting revenue from future interactions between customers and individual gaming machines.

Applicant respectfully submits that the invention is not obvious in view of Gopinathan et al and LeStrange et al. The gathering of data for auditing functions in LeStrange et al would not be compatible with the preprocessing techniques for fraud detection in Gopinathan et al. Even if the two documents can be combined, the present invention provides a novel and inventive system over the combination. There is no motivation to combine the LeStrange et al and Gopinathan et al references. Applicant respectfully submits that it is the Examiner's hindsight, after studying the present invention, to combine these references by inputting accounting gaming data and customer data in a gaming machine of LeStrange into a neural network of Gopinathan for trading and predicting.

No additional claim fees have been generated by this communication, but, Applicant submits herewith a Petition for Extension of Time for three months, with the appropriate fee. The Commissioner is hereby authorized to charge any deficiencies and or credit any overpayments associated with this communication or petition to Deposit Account No. 04-1420.

This application now stands in allowable form and reconsideration and allowance are respectfully requested.

Respectfully submitted,

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(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
21 December 2000 (21.12.2000)

PCT

(10) International Publication Number
WO 00/77682 A1

(51) International Patent Classification[7]: G06F 17/30, 17/60

(21) International Application Number: PCT/NZ00/00099

(22) International Filing Date: 14 June 2000 (14.06.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

336257	14 June 1999 (14.06.1999)	NZ
503480	20 March 2000 (20.03.2000)	NZ
504315	3 May 2000 (03.05.2000)	NZ
504589	17 May 2000 (17.05.2000)	NZ

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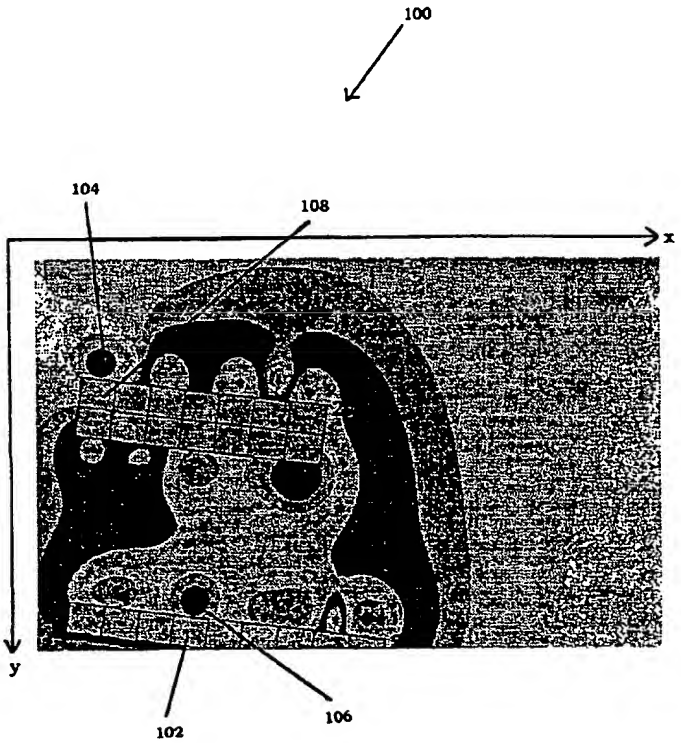
(54) Title: DATA VISUALISATION SYSTEM AND METHOD



(57) Abstract: The invention provides a data visualisation system comprising a data value memory in which is maintained a finite set of data values and display means arranged to display a contoured representation (100). One or more of the data values are displayed as contours around one or more data points (106, 104) and each data value is centred on a data point. The invention also provides a method of data visualisation and a data visualisation computer program.

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Annotated Marked-up Drawing

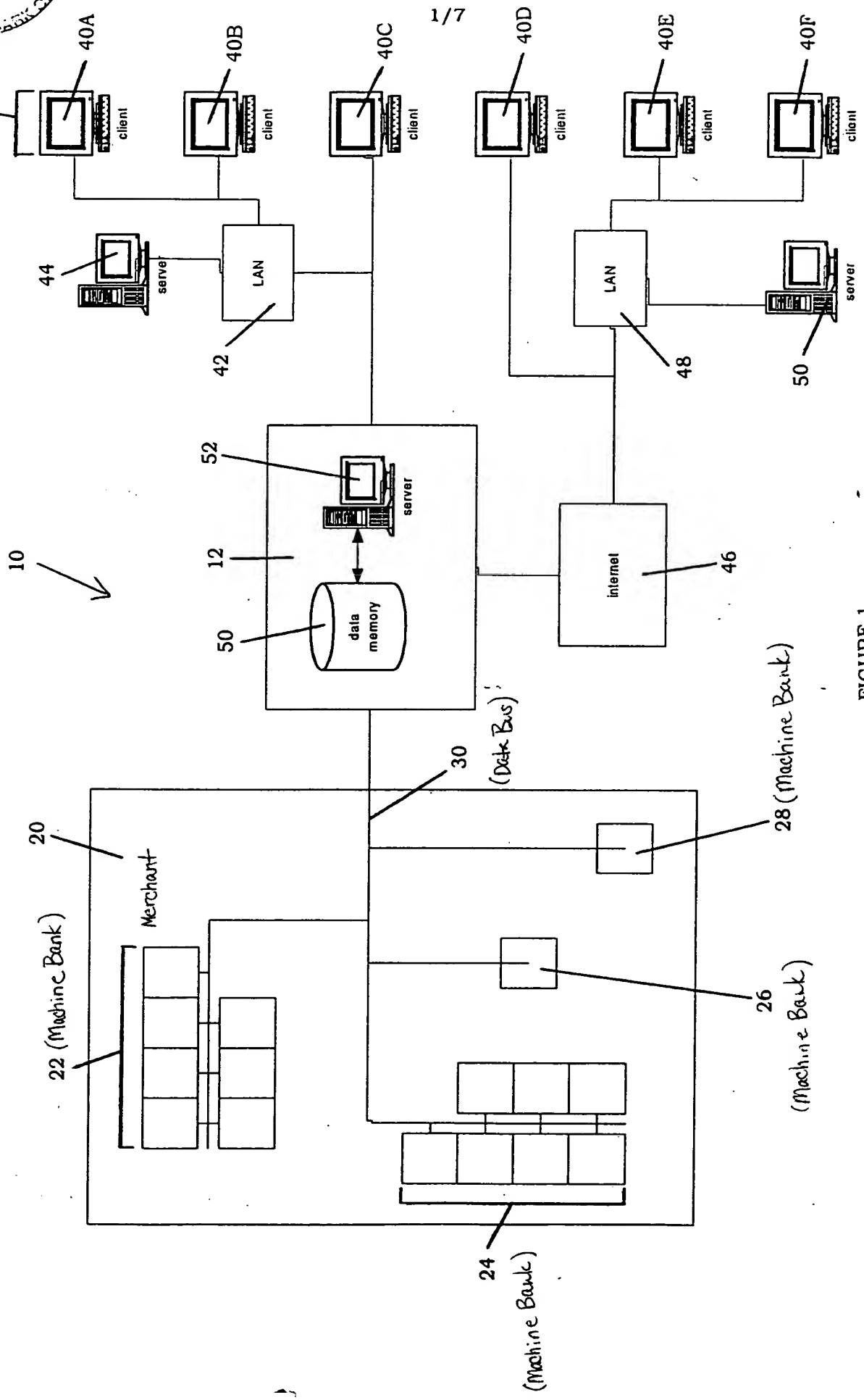

FIGURE 1